

Part 1 - Image of choice

(Carmarthen county council, 2026)





(Learning Resources Primary Science Jumbo Bug Jars, 2026)



(Learning Resources Jumbo Magnifier, 2026)



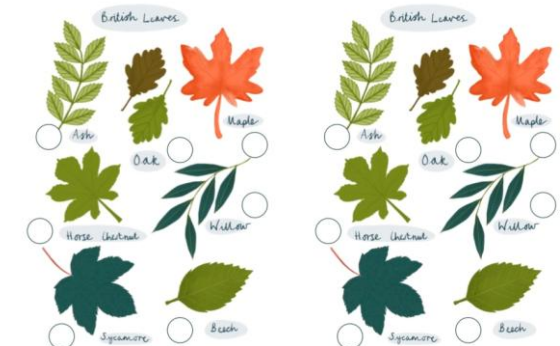
(Learning Resources Simple Tape Measure, 2026)



(Learning Resources Jumbo Tweezers, 2026)



(Flags Sticky Tabs, 2026)



(Leaf Identification Activity - Learning Poster , 2024)

Part 2

Activity 1: The Weather

This activity is observing the weather and learning the correct clothing to wear by using charts and symbols.

These activities are aimed at 4-year-olds.

Within the approach used for activity one, the weather is discussed. Children develop knowledge of the weather through observation, experience and interaction with their environment. Their understanding grows as they explore and talk about what they see, hear and feel. Children learn about the weather by experiencing it in settings or through first-hand exposure. This allows children to observe and notice changes in what they can hear, see and feel, such as recognising changes in wind or patterns in the sky. The children are asked what the weather is like today, followed by a visual aid of a chart with symbols of sunny, rainy, cloudy, windy, and snowy. From the choice of weather, the children are then presented with a range of clothing and weather-appropriate items, where they choose what is suitable for the weather type. The children can develop an understanding of what clothing to wear in the right weather conditions, which helps children make practical decisions. Should it be sunny, they will need sun cream and a hat, and plenty of water for dehydration. Should it be rainy, they will understand that Wellingtons and waterproof clothes should be used.

Completing such activities develops scientific understanding for children to learn about the weather and to identify patterns, which helps them understand natural processes. This supports early science learning and curiosity about the natural world. Children can begin to notice patterns and changes in the environment day by day and across the different seasons. This strengthens their observation and thinking skills, it develops an awareness of how the weather affects the plants, animals and people, helping them understand their connection to the environment. Additionally, it will allow children to develop the skills of tracking the weather over

time and support mathematical thinking by using charts. This helps children recognise patterns, counting and simple data recording, which can be used in a variety of activities to develop their learning further.

Activity 2 Biodiversity Investigation

This activity is built on investigating a tree trunk using a magnifying glass, tweezers and bug pots.

Providing an outdoor space with a tree trunk offers rich learning opportunities in early years education, especially when children use it to explore insects and nature. It supports multiple areas of development in a very natural, engaging way. A tree trunk becomes a mini ecosystem, and children can look for insects like beetles, ants, spiders or woodlice, which helps them learn about habitats. They will learn about life cycles and how living things depend on each other. This builds early scientific thinking through observing, questioning and comparing. The children can also collect the insects for further investigation, such as how many legs does it have? What colour is it and how does it move? The understanding of handling living things gently and always returning them to their habitat, the development of understanding that even small places are full of life, this links to the Welsh Curriculum because outdoor learning supports wellbeing and connection to nature.

Allowing and showing children how to lift bark, peering into crevices and noting movement will naturally encourage their curiosity to learn and explore. Children begin to ask questions such as “Why do insects live here?” or “What do they eat?” These are key foundations for inquiry-based learning. Exploring insects in their natural habitat helps children develop empathy and care for living things. They learn to handle creatures gently and understand that even small organisms are important. Children are learning science skills such as observing closely and identifying differences between insects. Learning that different creatures live in the same place is also in line with the Curriculum for Welsh – Science and Technology. To keep it practical, visual tally charts can be used so they can draw what they see, take photos for discussion and use symbols or stickers. In line with the Curriculum for Welsh

(2022) Mathematics and Numeracy, they will be counting how many creatures are found, and comparing groups by size, colour and number of legs.

Activity 3 Leaf Data Investigation

For this activity, the children will collect 5 different leaves and sit around the bench to sort them into colour, size and shape by using different charts to tick them off, and they will draw the leaf.

Using an outdoor area for activity 3 is a simple but powerful activity for early years children. It combines real-world exploration with maths and science skills, making learning meaningful and engaging. It links strongly with areas of the Early Years Foundation phase and Welsh Curriculum (2022) as children begin to understand how data works practically by counting the leaves they have collected, sorting them by colour, size and shape, and also by sorting the largest to smallest leaf and measuring their length. Using simple charts or tallies is in line with the Curriculum for Welsh (2022) Mathematics and Numeracy, as it builds the foundation for statistics and problem-solving (Welsh Government, 2020).

Children act like young scientists by observing differences between leaves and noticing patterns, for example, the colour in autumn and throughout the seasons. The children can ask questions such as “Why are some leaves bigger? Should the activity be repeated through different seasons, it would give a greater understanding of the natural world. This would allow the children to explore concepts such as change and plants, which run alongside the Curriculum for Welsh – Science and Technology. Children connect with nature through hands-on experience by learning that leaves come from different trees, which begins an understanding of diversity in plants and develops respect for the environment. It supports language development by using descriptive words, smooth, rough, pointy and wide, and comparative language, bigger, smaller and longer. They can talk about their findings and explain ideas. It promotes social skills such as working together to collect and sort leaves, sharing ideas and discussing, finding and taking turns and cooperating. Critical thinking is used by making decisions about how to sort leaves and predicting outcomes,

for example, which colour “will we find most”, interpreting simple data, “we found more green leaves than brown.” Leaf data investigation enhances fine motor skills by picking up and handling leaves, arranging them into groups or patterns, drawing or recoding findings. Children can be creative by using leaves for patterns. They can also represent data visually through drawing or using simple charts. Children are not just told about numbers and patterns, they can actually see, touch and explore them, which turns maths and science into real experiences that deepen understanding and engagement.

Activity 4 Shadow Time Experiment

This activity uses the light that comes through the hut door and window by placing a flag sticker upright and measuring the shadow length every few minutes.

The hut will be used in activity 4 to observe how the sunlight comes through the windows and door. It's a hands-on learning experience for early years children which combines play, exploration and early scientific and maths thinking in a very natural way. Children can see how sunlight enters the hut at different angles, which creates bright patches and shadows. This helps them explore the basic ideas of light and dark. They can use the flags to measure how much the sunlight moves and at what angle it moves. As the day goes on, the sunlight moves across the hut floor and walls, from which children begin to notice patterns and change over time, connecting to the idea of the Earth's rotation in a simple observable way, which runs alongside the Curriculum for Welsh – Science and Technology. They can compare how far the light reaches by noticing more or less light and track movement by marking where the light was in the morning to the afternoon and measure the distance, which runs in line with the Curriculum for Welsh (2022) Mathematics and Numeracy. Children will also use imaginative play throughout these activities; they will plan, problem solve and act out scenarios, which builds thinking skills linked to cognitive development.

Part 3 – RISK BENEFIT ASSESSMENT

Location / Activity:	Nature Park	Date:	9 th March 2026
Assessor:	Charlotte Montgomery	Review date:	

The boxes in the table below will expand as you type into them; pre-entered text is simply for illustration. You should delete irrelevant items and replace them with text relevant to your circumstances.

Your overall risk rating – Low, medium or high – is based on your judgement about whether the BENEFITS of the activity or opportunity outweigh the RISKS.

Experience exploring an outdoor space in a photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
Risk assessment of the area	This will help keep the children safe.	Running and tripping on the tarmac path. Danger of wandering off into the trees and meeting strangers.	Children	The area is secure with a gate and a car park where children can be safely led to the play area.	Low

Experience exploring an outdoor space in a photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
Risk assessment of the area	This will help keep the children safe.	Uneven ground means a risk of tripping, plus objects (rocks and tree branches) leads to tripping.	Children and adults	Make sure they have appropriate footwear. Make them aware of where it is uneven and of the objects that may trip over.	Med
Outdoor activity considering the weather conditions	Learn about the weather in different conditions: cold, hot, windy and stormy. Knowing when it is safe to go out.	High winds, strong sun, and high temperatures. Very wet weather.	Children and adults	Wet weather gear, Wellingtons, waterproofs. Suncream, sunhat, and water in case of dehydration in very hot weather. High winds can damage the building, so make sure they stay away from trees. Be aware of debris that it can be blown around (litter, loose objects)	Med.
Shadow time experiment	Maths and measuring skills, creating a graph. Science (sun movement)	None	Nobody	No sharp instruments will be used. A tape measure is child-friendly. Using paper flags.	Low

Experience exploring an outdoor space in a photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
Leaf data investigation	Working out sizes, colours, shapes, and patterns. Identifying what leaves belong to which trees. Measuring the length of each leaf	Make sure there are no large branches which they will be under. In the seating area, they need to be careful how they get onto the bench seats.	Children	Make sure that they do not go under large branches and that they get onto the seats in an orderly fashion. Make sure that there are no stinging insects (ants) around if collecting leaves off the ground.	Low.
Bio-diversity investigation of the tree trunk for different fungi and insects	Help identify and learn about different insects and flora. Maths with counting the different types found. Learn about their lifecycle.	To be careful not to knock themselves/trip over the tree trunk. Being bitten or stung by insects.	Children	Make sure they do not put fingers in their mouths after touching the fungi, moss, etc. To use the tweezers for picking up insects, but be careful around wasps and bees. Make use of bug pots.	Med

Experience exploring an outdoor space in a photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
Children freely investigate the environment around them	Children investigate their surroundings, observe what they see, and communicate their thoughts Children develop the ability to notice potential risks in their environment and take action to prevent harm.	Will need to keep an eye on them with dangers of wandering off, tripping, being stung, and natural hazards such as logs and rocks.	Children	Will need to keep a close eye on them. Make sure there is the correct number of staff to look after them. Make them aware of the hazards.	Med
Strangers and dogs	Keeping them safe and aware.	Being bitten by a dog or being approached by a stranger.	Children and adults.	Make sure that they do not wander off. Make sure you have the correct number of staff to look after them. Make them aware that they should not approach any strangers or loose dogs.	Med.

Part 4

As stated by Early Years Wales (2020), early learning refers to the period of education from birth to 7 years old, when children experience rapid physical, cognitive, social and emotional development. During this stage, learning is shaped through exploration, play and interaction with the surrounding environment. Educators and researchers emphasise the value of the outdoor environment as a powerful space that supports holistic development and enriches children's learning experiences. Little, Elliott and Wyver (2020) suggest that outdoor learning environments provide opportunities that indoor settings often cannot. Natural spaces are dynamic, unpredictable and rich in sensory stimuli, allowing children to engage all their senses. This type of learning aligns with theories of Jean Piaget, who argued that children learn best through active exploration and hands-on experiences. Outdoors, children can touch, smell, hear and see a wide range of natural elements, helping them construct knowledge in a meaningful and memorable way (Waite-Stupiansky, 2022).

According to Bento and Dias (2017), adults play a crucial role in children's learning and development, particularly in the early years when foundational skills are being formed. Their involvement ranges from providing guidance and encouragement to offering structured support through scaffolding. Effective adult support helps children build confidence, develop independence, and extend their understanding of the world around them. A key concept that connects adult support and cognitive development is scaffolding, introduced by Lev Vygotsky. His theory of the Zone of Proximal Development (ZPD) explains that children learn best when supported to achieve tasks slightly beyond their current ability. Scaffolding involves providing temporary support, such as prompts or demonstrations, and gradually removing this assistance as the child becomes more confident to successfully extend their thinking while feeling supported (Harland, 2003). According to Fawcett (2009), modelling behaviour, adults support the development of children's thinking by extending it through questioning and interaction. This links to the work of Jerome Bruner, who emphasised the importance of active learning and dialogue. Bruner believes that adults play a key role in helping children construct knowledge

by guiding them to think more deeply and make connections. Strategies such as open-ended questioning encourage children to move beyond basic understanding and develop higher-order thinking skills (Macnaughton, 2003).

According to Meaney et al. (2026), supporting mathematical concepts in early education is essential for building a strong foundation for later learning, and outdoor play provides a valuable context in which this development can take place. The outdoor environment offers children meaningful, hands-on experiences that promote exploration, problem solving and critical thinking. Through play, children can engage with mathematical ideas naturally and enjoyably, making learning both effective and engaging. According to Waite (2011), describing mathematical ideas as abstract mental constructs does not mean the outdoors has no place in learning. While children need to gain mathematical knowledge, mathematics is also something adults actively do. This means learners should take part in genuinely mathematical activity, not just the process of acquiring knowledge, but engaging in inherently mathematical tasks. Such engagement includes applying what they know to everyday situations and developing new understanding through these experiences. Moreover, although mathematics deals with abstract concepts, physical objects still play a key role in shaping this understanding. Children rely on seeing, touching and hearing in the real world to help them make sense of these abstract ideas (Robinson et al., 2019).

Keith (2017) believes developing children's mathematical learning outdoors can be clearly linked to pedagogy and practice, often understood in early years as children's natural ability and curiosity combined with repeated and meaningful experiences. Pedagogy is where children's natural curiosity and early mathematical thinking, like noticing patterns, counting and comparing, the practitioner can put in place repeating practice and exploring these ideas through play and real experiences to deepen understanding, both of which are essential for securing learning. Blevins-Knabe and Berghout (2016) believe that the benefits of outdoor play include the opportunity for children to experience mathematics in real life. The concepts such as numbers, shape, space, measure and pattern can be explored through activities such as counting natural objects, building with materials, or navigating physical spaces. For example, children may count how many stones they have collected, compare the sizes of sticks, or these experiences allow

children to connect abstract mathematical ideas to concrete situations, supporting deeper understanding. These experiences support the theory of Jean Piaget, who argued that children learn best through active exploration of their environment. According to Piaget, children in the early years are typically in the proportional stage, where they learn through concrete experiences, rather than abstract thinking. Outdoor play provides exactly these types of experiences, allowing children to physically interact with materials and develop their understanding of mathematical concepts (Hargraves, 2021).

According to Panaoura and Nitsiou (2023), adults play an important role in supporting and extending children's mathematical learning outdoors. By interacting with children during play, adults can introduce mathematical language and encourage thinking through questioning. Asking open-ended questions such as "How many do you have?" helps children to reflect and develop their understanding. They also begin to understand the vocabulary, such as bigger and smaller. This approach is supported by Jerome Bruner, who emphasised the importance of guided discovery and interaction in learning. Through this process, children are encouraged to think more deeply and make connections between ideas (Ozdem-Yilmaz and Bilican, 2025).

In line with the concept of scaffolding is also central to supporting mathematical development in outdoor play. Based on the work of Lev Vygotsky, scaffolding involves providing children with the appropriate level of support to help them achieve tasks just beyond their current ability. It shows an adult may help a child count objects accurately, demonstrate how to compare lengths, or guide them in solving a simple problem. As the child becomes more confident, the support is gradually reduced, allowing for greater independence (Bodrova and Leong, 2015).

According to Lederman, Zeidler and Lederman (2023), early outdoor play offers a powerful foundation for developing children's understanding of scientific concepts. When young children explore natural environments, such as gardens, parks, forests or even a simple backyard, they engage directly with the basic principles of science in ways that are meaningful, memorable and developmentally appropriate. These experiences support not only knowledge, but also curiosity, observation skills, and critical

thinking skills. According to scientific concepts supported through outdoor play, observation and inquiry are key. Children naturally ask questions about what they see, why leaves change colour, how insects move, or what happens when it rains. These everyday encounters mirror the processes used in science, observing, predicting and testing ideas. For example, watching a puddle dry in the sun introduces early ideas about evaporation, even if children do not yet use that term. Through repeated exposure, they begin to recognise patterns and changes in the natural world (Worch, Odell and Magdich, 2022). Adults play a crucial role in supporting children's early understanding of science in outdoor play by engaging them in meaningful experiences, encouraging curiosity, and guiding investigation. Rather than simply providing answers, effective adult support involves creating opportunities for children to explore, ask questions, and develop their own ideas about the world. This approach reflects key theories of child development, which emphasise active learning and the importance of social interaction (Gurholt and Sanderud, 2016).

According to Huertas-Abril and Gómez-Parra (2018), supporting science in outdoor play in the early years can be strongly informed by the work of Loris Malaguzzi, founder of the Reggio Emilia approach, who believes that children are capable, curious and active participants in their own learning, a perspective that aligns closely with child-led exploration in outdoor environments. His philosophy emphasises that children learn best when they are given the freedom to investigate their interests, making the outdoor environment an ideal context for developing early scientific thinking (Pope Edwards and Gandini, 2018). Malaguzzi's approach is the image of the child as a competent learner. In outdoor play, this means recognising that young children are naturally inclined to explore the world around them. Whether observing insects, collecting leaves, or splashing in puddles, children are engaging in early forms of scientific enquiry. Rather than directing activities, practitioners should allow children to follow their own questions and curiosities, supporting their investigations through careful observation and meaningful interaction (Thomas and Boulton, 2025).

Waite (2011) refers to practical science as being hands-on, implying an underlying belief that physical engagement matters, as children actively use their bodies during practical work, but what makes this advantageous? The idea that children learn more through such activities suggests that practical science is valued for improving academic performance. However, this also reveals an

implicit view of learning as primarily cognitive knowledge acquisition, likely emphasising how much knowledge is gained rather than considering its nature and significance.

Overall, Khan et al. (2023) believe the outdoor environment is an important place for learning in early years, and this can be linked to James Gibson's theory of affordances. Gibson explained that an environment gives children opportunities to act and explore, which he called an affordance. In an outdoor space, there are many natural affordances. For example, a tree can be climbed, a puddle can be splashed in, and a hill can be rolled down. These opportunities help children to move, explore, and learn through their own experiences. Unlike indoors, the outdoor environment is less restricted and gives children more freedom to choose what they want to do. Gibson also believed that children learn by interacting directly with their environment. This means that learning does not always need to be led by adults. Instead, children can discover things for themselves. When a child walks across uneven ground, they learn play, balance and coordination. When they play with water or mud, they begin to understand concepts such as cause and effect. For practitioners, it is important to provide a safe but interesting outdoor environment that offers a range of opportunities. Adults should observe what children are doing and support their learning by asking simple questions or providing extra resources when needed (Wyver and Little, 2018).

According to Smith-Gilman (2018), in line with Nicholson's development for loose parts, he stated, "The more loose parts there are, the more creative and inventive children's play will be" The adult can support this type of play outdoors with materials that can be moved, combined, redesigned, taken apart and used in many different ways. Loose parts such as sticks, stones, leaves, or shells have no fixed purpose, unlike toys with only one use. Adults should provide a variety of loose parts to observe and follow children's interests, and they should ask open-ended questions and avoid directing the play too much.

In conclusion, Duglan (2015) believes that adults are not just supervisors; they actively shape learning within the Early Years Foundation Phase and the Welsh curriculum. The support of these resources, it allows adults the freedom to support children in a

variety of different ways to learn. Adults are key to creating an environment where children can explore and learn through play. The adult creates an enabling, safe and stimulating space by giving children the opportunity to learn outside of the classroom. The adult can adapt the environment based on the children's needs, interests, to support exploration, be observed to take risks, be more imaginative, practice curiosity, create independence and whilst ensuring that it is inclusive. The outdoor environment is a powerful space for learning science and maths with the use of cooperative guidance of the curriculum (Welsh Government, 2020), and the role of the adult is essential in supporting this. While children learn through exploration and play, adults help to extend their thinking by observing, guiding and providing appropriate resources. By creating a safe, stimulating outdoor environment and allowing children the freedom to explore, practitioners can support both physical and cognitive development. This balanced approach helps children build important life skills, contributing to a healthy future and overall well-being, which also aligns with the aims and goals of the Welsh curriculum for children (Department for Education, 2024).

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